

WE CLAIM

1. A process comprising the steps of contacting at least one silicone containing compound with a supercritical fluid having a density of between about 0.2 and about 1 g/ml, decreasing said density so that two phases are formed a first phase comprising said at least one silicone containing compound and a second phase comprising at least one impurity and separating said second phase from said first phase.

2. The process of claim 1 wherein said supercritical fluid is selected from the group consisting of carbon dioxide, ethane, ethylene, propane, propylene, chlorotrifluoromethane and mixtures thereof.

3. The process of claim 1 wherein the supercritical fluid comprises carbon dioxide.

4. The process of claim 1 wherein the supercritical fluid has a density of between about 0.4 and about 0.8 g/ml.

5. The process of claim 1 wherein the contacting step comprises at least two stages a first stage and a second stage wherein the density of said supercritical fluid is lower than the density in the first stage.

6. The process of claim 5 wherein the density of the supercritical fluid in the first stage is between about 0.4 and about 0.8 g/ml and the density of the supercritical fluid in the second stage is between about 0.1 g/ml and about 0.4 g/ml.

7. The process of claim 5 further comprising at least one additional contacting stage.

8. The process of claim 5 wherein the contacting step comprises at least three stages and the density of the supercritical fluid in the first stage is between about 0.5 and about 0.7 g/ml, the density of the supercritical fluid in the second stage is between about 0.3 g/ml and about 0.5 g/ml and the density of the supercritical fluid in a third stage is between about 0.1 g/ml and about 0.3 g/ml.

9. The process of claim 5 wherein the contacting step comprises at least four stages and the density of the supercritical fluid in the first stage is between about 0.5 and about 0.7 g/ml, the density of the supercritical fluid in the second stage is between about 0.3 g/ml and about 0.5 g/ml, the density of the supercritical fluid in a third stage is between about 0.15

g/ml and about 0.35 g/ml and the density of the supercritical fluid in a fourth stage is between about 0.1 g/ml and about 0.3 g/ml.

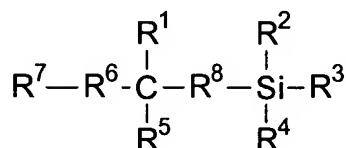
10. The process of claim 1 wherein said contacting step is conducted under conditions comprising pressures from about 1,000 psi to about 5,000 psi and temperatures greater than about 31°C.

11. The process of claim 1 wherein said contacting step is conducted under conditions comprising pressures from about 2,000 psi to about 3,000 psi and temperatures between about 31 and about 80°C.

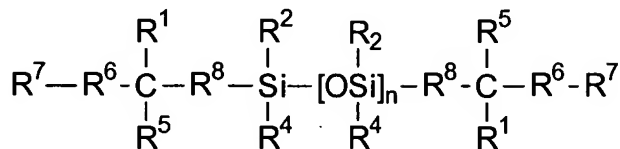
12. The process of claim 1 wherein the silicone containing compounds is selected from the group consisting of silicone containing monomers, macromers, prepolymers and mixtures thereof.

13. The process of claim 12 wherein the silicone containing compound comprises at least one polymerizable group.

14. The process of claim 12 wherein the of silicone containing monomers is at least one monomers of Formulae I and II



I



II

wherein:

n is an integer between 3 and 35,

R¹ is hydrogen, C₁₋₆alkyl;

R^2, R^3 , and R^4 , are independently, C_{1-6} alkyl, $triC_{1-6}$ alkylsiloxyl, phenyl, naphthyl, substituted C_{1-6} alkyl, substituted phenyl, or substituted naphthyl

where the alkyl substituents are selected from one or more members of the group consisting of C_{1-6} alkoxycarbonyl, C_{1-6} alkyl, C_{1-6} alkoxy, amide, halogen, hydroxyl, carboxyl, C_{1-6} alkylcarbonyl and formyl, and

where the aromatic substituents are selected from one or more members of the group consisting of C_{1-6} alkoxycarbonyl, C_{1-6} alkyl, C_{1-6} alkoxy, amide, halogen, hydroxyl, carboxyl, C_{1-6} alkylcarbonyl and formyl;

R^5 is hydroxyl, an alkyl group containing one or more hydroxyl groups; or

$(CH_2(CR^9R^{10})_yO)_x-R^{11}$ wherein y is 1 to 5, preferably 1 to 3, x is an integer of 1 to 100, preferably 2 to 90 and more preferably 10 to 25; $R^9 - R^{11}$ are independently selected from H, alkyl having up to 10 carbon atoms and alkyls having up to 10 carbon atoms substituted with at least one polar functional group,

R^6 is a divalent group comprising up to 20 carbon atoms;

R^7 is a monovalent group that can under free radical and/or ionic polymerization and comprising up to 20 carbon atoms;

R^8 is a divalent group comprising up to 20 carbon atoms.

15. The process of claim 14 wherein R^1 is hydrogen; R^2, R^3 , and R^4 , are independently selected from the group consisting of C_{1-6} alkyl and $triC_{1-6}$ alkylsiloxyl;

R^5 is hydroxyl, $-CH_2OH$ or $-CH_2CHOHCH_2OH$,

R^6 is a divalent C_{1-6} alkyl, C_{1-6} alkyloxy, C_{1-6} alkyloxy C_{1-6} alkyl, phenylene, naphthalene, C_{1-12} cycloalkyl, C_{1-6} alkoxycarbonyl, amide, carboxy, C_{1-6} alkylcarbonyl, carbonyl, C_{1-6} alkoxy, substituted C_{1-6} alkyl, substituted C_{1-6} alkyloxy, substituted C_{1-6} alkyloxy C_{1-6} alkyl, substituted phenylene, substituted naphthalene, substituted

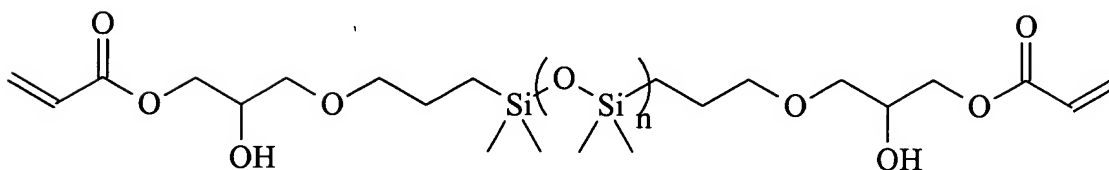
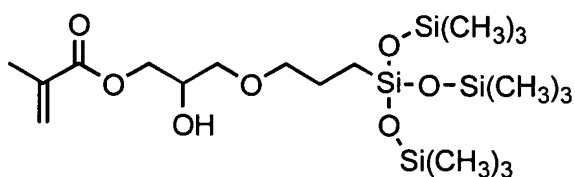
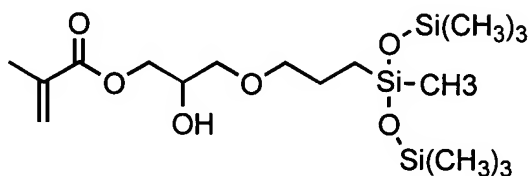
C_{1-12} cycloalkyl, where the substituents are selected from one or more members of the group consisting of C_{1-6} alkoxycarbonyl, C_{1-6} alkyl, C_{1-6} alkoxy, amide, halogen, hydroxyl, carboxyl, C_{1-6} alkylcarbonyl and formyl;

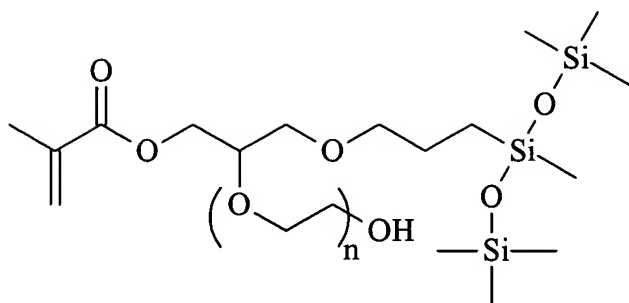
R^7 comprises a free radical reactive group selected from the group consisting of acrylate, styryl, vinyl, vinyl ether, itaconate group, C_{1-6} alkylacrylate, acrylamide,

C₁₋₆alkylacrylamide, N-vinyl lactam, N-vinylamide, C₂₋₁₂alkenyl, C₂₋₁₂alkenylphenyl, C₂₋₁₂alkenyl naphthyl and C₂₋₆alkenylphenylC₁₋₆alkyl;

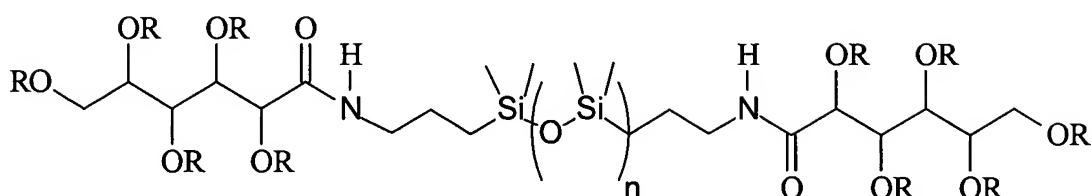
R⁸ is selected from the group consisting of divalent C₁₋₆alkyl, C₁₋₆alkyloxy, C₁₋₆alkyloxyC₁₋₆alkyl, phenylene, naphthalene, C₁₋₁₂cycloalkyl, C₁₋₆alkoxycarbonyl, amide, carboxy, C₁₋₆alkylcarbonyl, carbonyl, C₁₋₆alkoxy, substituted C₁₋₆alkyl, substituted C₁₋₆alkyloxy, substituted C₁₋₆alkyloxyC₁₋₆alkyl, substituted phenylene, substituted naphthalene, substituted C₁₋₁₂cycloalkyl, where the substituents are selected from one or more members of the group consisting of C₁₋₆alkoxycarbonyl, C₁₋₆alkyl, C₁₋₆alkoxy, amide, halogen, hydroxyl, carboxyl, C₁₋₆alkylcarbonyl and formyl.

17. The process of claim 15 wherein the silicone containing compound is selected from the group consisting of





and

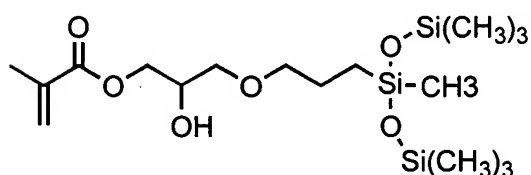


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where $n = 1-50$ and R is independently selected from H and polymerizable unsaturated group, with at least one R is a polymerizable group, and at least one R is H.

18. The process of claim 15 wherein said silicone containing compound comprises

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19. The process of claim 12 wherein the silicone containing compound is selected from the group consisting of macromer, prepolymers and mixtures thereof.

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20. The process of claim 19 wherein the silicone containing compound comprises at least one silicone containing acrylic star copolymer or macromer.